



2661 #5
W
8-16-02

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:
Bindiganavale S. Nataraj

Application No.: 09/815,921

Filed: March 24, 2001

Title: Method and Apparatus For Selecting a
Most Significant Priority Number for a
Device Using a Partitioned Priority Index
Table

Attorney Docket No. NLM.P002

Examiner: Not Yet Assigned

Art Unit: 2661

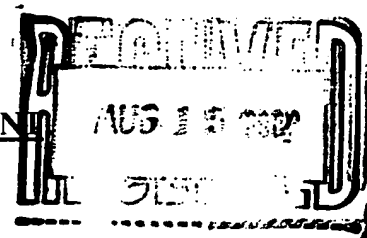
RECEIVED

AUG 1 4 2002

Technology Center 2600

Assistant Commissioner for Patents
Washington, DC 20231

INFORMATION DISCLOSURE STATEMENT



Dear Sir:

This Information Disclosure Statement is believed to be filed before the mailing date of a first Office Action on the merits under 37 CFR §1.97(b). Accordingly, it is believed that no fees are due in connection with the filing of this Information Disclosure Statement. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-1624.

The references listed in the attached PTO Form PTO/SB/08A, copies of which are attached, may be material to examination of the above-identified patent application. Applicant submits these references in compliance with his duty of disclosure pursuant to 37 CFR §§1.56 and 1.97. The Examiner is requested to make these references of official record in this application.

CERTIFICATE OF MAILING

Date of Deposit August 8, 2002

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D. C. 20231 on the date indicated above.

Lawrence M. Cho

(Typed or printed name of person mailing correspondence)


(Signature of person mailing correspondence)

This Information Disclosure Statement is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that these references indeed constitute prior art.

If there are any additional charges, please charge them to Deposit Account No. 50-1624.

Respectfully submitted,

Dated: 8/8, 2002

P.O. Box 2144
Champaign, IL 61825
Tel: (217) 377-2500
Fax: (217) 356-7373

Lawrence M. Cho

Lawrence M. Cho
Attorney for Applicant
Reg. No. 39,942



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Project of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO		Complete if Known	
		Application Number	09/815,921
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Filing Date	March 24, 2001
		First Named Inventor	Bindiganavale S. Nataraj
		Art Unit	2661
		Examiner Name	Not Yet Assigned
		Attorney Docket Number	NLM.P002
Sheet	1	of	7

U.S. PATENT DOCUMENTS					
Examiner Initials ¹	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
		US- 3,257,646	06-21-1966	Roth	RECEIVED AUG 14 2002 Technology Center 2600
		US- 3,353,159	11-14-1967	Lee, III	
		US- 3,602,899	08-31-1971	Lindquist et al.	
		US- 3,675,211	07-04-1972	Raviv	
		US- 3,685,020	08-15-1972	Meade	
		US- 3,868,642	02-25-1975	Sachs	
		US- 4,112,502	09-05-1978	Scheuneman	
		US- 4,244,033	01-06-1981	Hattori	
		US- 4,472,805	09-18-1984	Wacyk et al.	
		US- 4,523,301	06-11-1985	Kadota	
		US- 4,646,271	02-24-1987	Uchiyama	
		US- 4,656,626	04-07-1987	Yudichak et al.	
		US- 4,670,858	06-02-1987	Almy	
		US- 4,747,080	05-24-1988	Yamada	
		US- 4,758,982	07-19-1988	Price	
		US- 4,780,845	10-25-1988	Threewitt	
		US- 4,785,398	11-15-1988	Joyce et al.	
		US- 4,791,606	12-13-1988	Threewitt et al.	
		US- 4,813,002	03-14-1989	Joyce et al.	
		US- 4,845,668	07-04-1989	Sano et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials ¹	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ - Kind Code ⁵ (if known)				
		EP 0 267 612 A2	05-18-1988	Akita		
		EP 0 381 249 A2	08-08-1990	Akashi		
		EP 0 660 332 A1	06-28-1995	Montoye		
		EP 0 774 758 A2	05-21-1997	Rao		
		EP 0 872 802 A2	10-21-1998	Kaganoi		
		EP 08167295 (Japan Abst)	06-25-1996	Hiroshi		
		EP 08273376 (Japan Abst)	10-18-1996	Takeshi		
		WO 98/12651	03-26-1998	Kemoko		
		WO 99/31581	06-24-1999	Therkildsen		

Examiner Signature	Date Considered
-----------------------	--------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO		Complete if Known	
		Application Number	09/815,921
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Filing Date	March 24, 2001
		First Named Inventor	Bindiganavale S. Nataraj
		Art Unit	2661
		Examiner Name	Not Yet Assigned
		Attorney Docket Number	NLM.P002
Sheet	3	of	7

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
		US- 5,422,838	06-06-1995	Lin	RECEIVED AUG 1 4 2002 Technology Center 2600
		US- 5,440,709	08-08-1995	Edgar	
		US- 5,454,094	09-26-1995	Montove	
		US- 5,455,576	10-03-1995	Clark, II et al.	
		US- 5,469,161	11-21-1995	Bezek	
		US- 5,485,418	01-16-1996	Hiraki et al.	
		US- 5,490,102	02-06-1996	Jurbran	
		US- 5,491,703	02-13-1996	Barnaby et al.	
		US- 5,513,134	04-30-1996	Cooperman et al.	
		US- 5,517,441	05-14-1996	Dietz et al.	
		US- 5,621,677	04-15-1997	Jones	
		US- 5,642,322	06-24-1997	Yoneda	
		US- 5,649,149	07-15-1997	Stormon et al.	
		US- 5,706,224	01-06-1998	Srinivasan, et al.	
		US- 5,745,488	04-28-1998	Thompson et al.	
		US- 5,818,786	10-06-1998	Yoneda	
		US- 5,818,873	10-06-1998	Wall et al.	
		US- 5,841,874	11-24-1998	Kempke et al.	
		US- 5,860,085	01-12-1999	Stormon et al.	
		US- 5,870,324	02-09-1999	Helwig	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. 1	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Country Code 3 - Number 4 - Kind Code 5 (if known)				

Examiner Signature		Date Considered	
-------------------------------	--	----------------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



PTO/SB/08A (10-01)
Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO		Complete if Known	
		Application Number	09/815,921
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Filing Date	March 24, 2001
		First Named Inventor	Bindiganavale S. Nataraj
		Art Unit	2661
		Examiner Name	Not Yet Assigned
		Attorney Docket Number	NLM.P002
Sheet	4	of	7

U.S. PATENT DOCUMENTS					
Examiner Initials ¹	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
		US- 5,893,931	04-13-1999	Penq et al.	RECEIVED AUG 1 4 2002 Technology Center 2600
		US- 5,920,886	07-06-1999	Feldmeier	
		US- 5,930,359	07-27-1999	Kempke et al.	
		US- 5,946,704	08-31-1999	Yoneda et al.	
		US- 5,949,696	09-07-1999	Threewitt	
		US- 6,000,008	12-07-1999	Simcoe	
		US- 6,006,306	12-21-1999	Haywood, et al.	
		US- 6,011,795	01-04-2000	Varghese et al.	
		US- 6,065,064	05-16-2000	Satoh et al.	
		US- 6,081,440	06-27-2000	Washburn et al.	
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS							
Examiner Initials ¹	Cite No. ¹	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³	-Number ⁴ - Kind Code ⁵ (if known)				

Examiner Signature		Date Considered	
-------------------------------	--	----------------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Complete if Known	
		Application Number	09/815,921
		Filing Date	March 24, 2001
		First Named Inventor	Bindiganavale S. Nataraj
		Group Art Unit	2661
		Examiner Name	Not Yet Assigned
		Attorney Docket Number	NLM.P002
Sheet	5	of	7

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials ¹	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		Advanced Micro Devices, "Final Am99C10A 256 x 48 Content Addressable Memory" Publication No. 08125, Rev. G, December 1992, pp. 1-21.	
		MASAO AKATA, "A Scheduling Content-Addressable Memory for ATM Space-Division Switch Control", IEEE International Solid-State Circuits Conference, Feb. 1991, New York.	
		SOO-IK CHAE et al., "Content-Addressable Memory for VLSI Pattern Inspection", IEEE Journal of Solid State Circuits, Vol. 23, No. 1, February 1988, pp. 74-78.	
		Cisco Systems, Inc., "Policy-Based Routing", 1996, pp. 1-7.	
		GEC Plessey Semiconductors, "P2800 Multi-Port Content Addressable Memory", Functional Product Specification GPS-FPS-2800-12, January 1996.	
		GEC Plessey Semiconductors, "P2800 2K x 64 Bit Multi-Port Content Addressable Memory", Preliminary Information, February 1997, pp. 1-15.	
		KANAD GHOSE, "Response Pipelined CAM Chips: The First Generation and Beyond.", 7th International Conference on VLSI Design, January 1994, pp. 365-368.	
		PANKAJ GUPTA et al., "Routing Lookups in Hardware at Memory Access Speeds", Proc. Infocom, April 1998, 8 pgs.	
		PANKAJ GUPTA and NICK MCKEOWN, "Packet Classification on Multiple Fields", SIGCOMM (September 2, 1999), 14 pages.	
		SIMON R. JONES et al., "A 9-kbit Associative Memory for High Speed Parallel Processing Applications", IEEE Journal of Solid-State Circuits, Vol. 23, No. 2, April 1988, pp. 543-548.	
		HIROSHI KADOTA et al., "An 8-kbit Content-Addressable and Reentrant Memory", IEEE Journal of Solid-State Circuits, Vol. SC-20, No. 5, October 1985, pp. 951-956.	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Complete if Known	
		Application Number	09/815,921
		Filing Date	March 24, 2001
		First Named Inventor	Bindiganavale S. Nataraj
		Group Art Unit	2661
		Examiner Name	Not Yet Assigned
		Attorney Docket Number	NLM.P002
Sheet	6	of	7

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials [*]	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		KLSI KE5B064A1 Address Processor Ver. 2.0.2 Preliminary (believed to be published late 1995 or early 1996).	
		KLSI KE5B064H Series Address Processor Ver. 1.0.1 (believed to be published in late 1995 or early 1996).	
		MASAYOSHI KOBAYASHI et al., "A 50Mpps Longest Prefix Match Search Engine LSI for Multigigabit IP Forwarding", Technical Report of IEICE IN08-119, November 1998, pp. 7-12.	
		T.V. LAKSHMAN and D. STILIADIS, "High-Speed Policy-Based Packet Forwarding Using Efficient Multi-Dimensional Range Matching", SIGCOMM, 1988, pp. 203-214.	
		LANDROCK et al., "Associative Storage Module", IBM Technical Disclosure Bulletin, Vol. 25, No. 5, October 1992, pp. 2341-2342.	
		ANTHONY MCAULEY et al., "A Self-Testing Reconfigurable CAM", IEEE Journal of Solid-State Circuits, Vol. 26, No. 3, March 1991, pp. 257-261.	
		Motorola Semiconductor Technical Data, "Advanced Information 16K X 64 CAM", MCM69C432, January 1996, 4 pages.	
		MUSIC Semiconductors, "MU9C1480 LANCAM" Advance Information, March 22, 1990, pp. 1-11.	
		MUSIC Semiconductors, "MU9C1480 LANCAM Handbook", November 1994.	
		MUSIC Semiconductors, "MU9C2480 LANCAM" Preliminary Data Sheet, August 25, 1995, pp. 1-24.	
		MUSIC Semiconductors, "MUAA CAM Family" Advanced Information, February 24, 1998, Rev. 0, pp. 1-16.	

Examiner Signature	Date Considered
-----------------------	--------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



PTO/SB/08B (10-01)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449B/PTO		Complete if Known	
		Application Number	09/815,921
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Filing Date	March 24, 2001
		First Named Inventor	Bindiganavale S. Nataraj
		Group Art Unit	2661
		Examiner Name	Not Yet Assigned
		Attorney Docket Number	NLM.P002
Sheet	7	of	7

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T²
		MUSIC Semiconductors, Advance Information, "MUAA Routing CoProcessor (RCP) Family", (October 1, 1998), Rev. 1b, pages 1-16.	
		TAKESHI OGURA et al., "A 4-kbit Associative Memory LSI", IEEE Journal of Solid-State Circuit, Vol. SC-20, No. 6, December 1985, pp. 1277-1281.	
		SERGIO R. RAMIREZ-CHAVEZ, "Encoding Don't Cares in Static and Dynamic Content-Addressable Memories", Transaction Briefs, IEEE Transactions on Circuits and System-II: Analog and Digital Signal Processing, Vol. 39, No. 8, August 1992, pp. 575-578.	
		IAN N. ROBINSON, "Pattern Addressable Memory", IEEE Micro, June 1992, pp. 20-30.	
		YONG-CHUI SHIN et al., "A Special-Purpose Content Addressable Memory Chip for Real-Time Image Processing", IEEE Journal of Solid-State Circuits, Vol. 27, No. 5, May 1992, pp. 737-744.	
		Stardust.com, "WhitePaper -- Introduction to QoS Policies", 1999, pp. 1-22.	
		V. SRINIVASAN, et al., "Packet Classification Using Tuple Space Search", SIGCOMM (September 2, 1999), 12 pages.	
		KEIKICHI TAMARU, "The Trend of Functional Memory Development", INVITED PAPER Special Issue on LSI Memories, IEICE Trans. Electron, Vol. E76-C, No. 11, Nov. 1993, pp. 1545-1554.	
		XIPENG XIAO and LIONEL M. NI, "Internet QoS: A Big Picture", IEEE Network, March/April 1999, pp. 8-18.	
RECEIVED AUG 1 4 2002 Technology Center 2600			

Examiner Signature		Date Considered	
-------------------------------	--	----------------------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.